IN THE CLAIMS:

Please amend the claims as follows:

1-17. (canceled).

18. (currently amended) An apparatus to read a bit of data, comprising:

a volume of material having a first side and a second side;

a first conductive material disposed on said first side;

a second conductive material disposed on said second side;

a reference conductor; and

an electron beam source, to generate an electron beam incident upon said volume of material to create a first current to be ~~measure~~ measured between said first conductive material and said reference conductor and a second current to be measured between said second conductive material and said reference conductor.

19. (original) Said apparatus of claim 18, further comprising an amplifier to amplify the first current.

20. (original) Said apparatus of claim 18, further comprising an amplifier to amplify the second current.

21. (original) Said apparatus of claim 18, wherein said volume of material is a polymer.

22. (currently amended) An apparatus to read a bit of data comprising:

a volume of material having a first side and a second side;

a first conductive material disposed on said first side;

a P-N junction disposed on said second side;

a reference conductor coupled with said P-N junction; and

an electron beam source, to generate an electron beam incident upon said volume of material to create a first current to be ~~measure~~ measured between said first conductive material and said reference conductor and a second current to be measured between said ~~second conductive material~~ P-N junction and said reference conductor.

23. (original) Said apparatus of claim 22, wherein said volume of material is a polymer.

24. (original) Said apparatus of claim 22, wherein an N-type layer of said P-N junction is coupled with said volume of material.

25. (original) Said apparatus of claim 22, wherein said P-N junction is a direct band semiconductor.

26. (original) Said apparatus of claim 22, further comprising a thin conductive interlayer to backwards bias said P-N junction.

27. (currently amended) An apparatus to read a bit of data comprising:

a volume of material having a first side and a second side;

a first conductive material disposed on said first side;

a P-N junction disposed on said second side;

an electron beam source, to generate an electron beam incident upon said first side of said volume of material to cause an emission of photons from said P-N junction; and

a photo-detector responsive to the emission of photons, wherein an output of said photo-detector is to be associated with the bit of data.

28. (currently amended) Said apparatus of claim 27, further comprising a substantially transparent layer coupled with said P-N junction, wherein the emission of photons ~~to~~ pass through said substantially transparent layer.

29. (original) Said apparatus of claim 27, wherein said volume of material is a polymer.

30. (original) Said apparatus of claim 27, wherein said P-N junction is a direct band semiconductor.

31. (original) Said apparatus of claim 27, further comprising an enclosure to contain said electron beam source and said volume of material, in a vacuum, to create a data storage device..

32. (original) Said apparatus of claim 31, further comprising:

a processor coupled with said data storage device;

a system bus coupled with said processor; and

a data storage device controller to control data transfer between said data storage device and said processor.

33. (original) Said apparatus of claim 32, further comprising a display coupled with said system bus.

34. (original) A method to store a bit of data, comprising:

exposing a volume of material, having a first electroluminescence intensity (EL), to an electron beam; and

changing the first EL intensity to a second EL intensity during said exposing, wherein the bit of data is stored.

35. (original) Said method of claim 34, wherein the first EL intensity is associated with a first memory state of the bit of data and the second EL intensity is associated with a second memory state of the bit of data.

36. (original) Said method of claim 34, wherein the volume of material is a polymer.

37. (original) Said method of claim 36, wherein the polymer is selected from the group consisting of poly(phenylene vinylene), polythiophenes, polypyridines, poly(pyridyl vinylenes) and polyphenylenes.

38. (original) Said method of claim 36, wherein the polymer is a copolymer of said polymer selected from the group consenting of poly(phenylene vinylene), polythiophenes, polypyridines, poly(pyridyl vinylenes) and polyphenylenes.

39. (original) An apparatus to store a bit of data comprising:

a volume of material having a first side and a second side;

a first conductive material disposed on said first side; and

a second conductive material disposed on said second side, wherein an electron beam to be irradiated on said volume of material to change a first electroluminescence intensity (EL) of said volume of material to a second EL wherein the bit of data is stored.

40. (original) Said apparatus of claim 39, wherein said volume of material is a polymer.

41. (original) Said method of claim 40, wherein said polymer is selected from the group consisting of poly(phenylene vinylene), polythiophenes, polypyridines, poly(pyridyl vinylenes) and polyphenylenes.

42. (original) Said method of claim 40, wherein said polymer is a copolymer of said polymer selected from the group consenting of poly(phenylene vinylene), polythiophenes, polypyridines, poly(pyridyl vinylenes) and polyphenylenes.

43. (currently amended) An apparatus to read a bit of data comprising:

a volume of material having a first side and a second side;

a first conductive material disposed on said first side;

a second conductive material disposed on said second side;

an electron beam source, to generate an electron beam having a first energy level, incident upon said first side of said volume of material to cause an emission of photons from said volume of material; and

a photo-detector responsive to the emission of photons, wherein an output of said photo-detector is to be associated with the bit of data.

44. (currently amended) Said apparatus of claim 43, further comprising a substantially transparent layer coupled with said second conductive material, wherein the emission of photons ~~to~~ pass through said substantially transparent layer.

45. (original) Said apparatus of claim 43, wherein said volume of material is a polymer.

46. (original) Said apparatus of claim 43, further comprising an enclosure to contain said electron beam source and said volume of material, in a vacuum, to create a data storage device.

47. (original) Said apparatus of claim 46, further comprising:

a processor coupled with said data storage device;

a system bus coupled with said processor; and

a data storage device controller to control data transfer between said data storage device and said processor.

48. (original) Said apparatus of claim 47, further comprising a display coupled with said system bus.

49-57. (canceled).